

STATE WATER CONTROL BOARD

9 VAC 25-280-10 et seq Groundwater Standards

Statutory Authority: § 62.1-44.15(3a) of the Code of Virginia.

EFFECTIVE February 12, 2004

9 VAC 25-280-10. Definitions.

The following words and terms when used in this chapter shall have the following meanings unless the context clearly indicates otherwise:

"Board" means State Water Control Board.

"Criteria" means elements of the board's groundwater quality standards, expressed as constituent concentrations, levels, or narrative statements, representing a quality of water that supports a particular use. When criteria are met, groundwater quality will generally protect the designated use.

"Groundwater quality standards" means provisions of state law which consist of a designated use or uses for the waters of the Commonwealth and water quality criteria for such waters based upon such uses. Groundwater quality standards are to protect the public health or welfare, enhance the quality of water and serve the purposes of the State Water Control Law (§ 62.1-44.2 et seq. of the Code of Virginia).

9 VAC 25-280-20. Groundwater standards: general requirements.

Except where otherwise specified, groundwater quality standards shall apply statewide and shall apply to all groundwater occurring at and below the uppermost seasonal limits of the water table. In order to prevent the entry of pollutants into groundwater occurring in any aquifer, a soil zone or alternate protective measure or device sufficient to preserve and protect present and anticipated uses of groundwater shall be maintained at all times. Zones for mixing wastes with groundwater may be allowed, upon request, but shall be determined on a case-by-case basis and shall be kept as small as possible. It is recognized that natural groundwater quality varies from area to area. Virginia is divided into four Physiographic Provinces, namely the Coastal Plain, Piedmont and Blue Ridge, Valley and Ridge, and Cumberland Plateau. See Figure 1. Accordingly, the board has established certain groundwater standards specific to each individual Physiographic Province.

9 VAC 25-280-30. Antidegradation policy for groundwater.

If the concentration of any constituent in groundwater is less than the limit set forth by groundwater standards, the natural quality for the constituent shall be maintained; natural quality shall also be maintained for all constituents, including temperature, not set forth in groundwater standards. If the concentration of any constituent in groundwater exceeds the limit in the standard for that constituent, no addition of that constituent to the naturally occurring concentration shall be made. Variance to this policy shall not be made unless it has been affirmatively demonstrated that a change is justifiable to provide necessary economic or social development, that the degree of waste treatment necessary to preserve the existing quality cannot be economically or socially justified, and that the present and anticipated uses of such water will be preserved and protected.

GROUNDWATER QUALITY STANDARDS

9 VAC 25-280-40. Groundwater standards applicable statewide.

CONSTITUENT	CONCENTRATION	
Sodium	270	mg/l
Foaming Agents as methylene blue active substances	0.05	mg/l
Petroleum hydrocarbons	1	mg/l
Arsenic	0.05	mg/l
Barium	1.0	mg/l
Cadmium	0.0004	mg/l
Chromium	0.05	mg/l
Copper	1.0	mg/l
Cyanide	0.005	mg/l
Lead	0.05	mg/l
Mercury	0.00005	mg/l
Phenols	0.001	mg/l
Selenium	0.01	mg/l
Silver	None	
Zinc	0.05	mg/l
Chlorinated Hydrocarbon Insecticides		
Aldrin/Dieldrin	0.003	ug/l
Chlordane	0.01	ug/l
DDT	0.001	ug/l
Endrin	0.004	ug/l
Heptachlor	0.001	ug/l
Heptachlor Epoxide	0.001	ug/l
Kepone	None	
Lindane	0.01	ug/l
Methoxychlor	0.03	ug/l
Mirex	None	
Toxaphene	None	
Chlorophenoxy Herbicides		
2,4-D	0.1	mg/l
Silvex	0.01	mg/l

GROUNDWATER QUALITY STANDARDS

Radioactivity

Total Radium (Ra-226 & Ra-228)	5 pCi/l
Radium 226	3 pCi/l
Gross Beta Activity*	50 pCi/l
Gross Alpha Activity (excluding Radon & Uranium)	15 pCi/l
Tritium	20,000 pCi/l
Strontium-90	8 pCi/l
Manmade Radioactivity - Total Dose Equiv.**	4 mrem/yr

pCi/l = picoCurie per liter mrem/yr = millirems per year

*The gross beta value shall be used as a screening value only. If exceeded the water must be analyzed to determine the presence and quantity of radionuclides to determine compliance with the tritium, strontium, and manmade radioactivity standards.

**Combination of all sources should not exceed total dose equivalent of 4 mrem/year.

9 VAC 25-280-50. Groundwater standards applicable by physiographic province.

CONSTITUENT	CONCENTRATION			
	Coastal Plain	Piedmont & Blue Ridge	Valley & Ridge	Cumberland Plateau
pH	6.5-9	5.5-8.5	6-9	5-8.5
Ammonia Nitrogen	0.025 mg/l	0.025 mg/l	0.025 mg/l	0.025 mg/l
Nitrite Nitrogen	0.025 mg/l	0.025 mg/l	0.025 mg/l	0.025 mg/l
Nitrate Nitrogen	5 mg/l	5 mg/l	5 mg/l	0.5 mg/l

GROUNDWATER QUALITY STANDARDS

9 VAC 25-280-60. Groundwater criteria: general requirements.

These groundwater quality criteria apply primarily to groundwater constituents that occur naturally. Since natural groundwater quality can vary greatly from area to area for these constituents, enforceable standards were not adopted. These criteria are intended to provide guidance in preventing groundwater pollution. Groundwater criteria are not mandatory.

9 VAC 25-280-70. Groundwater criteria.

CONSTITUENT	GROUNDWATER CRITERIA BY PHYSIOGRAPHIC PROVINCE***				(mg/l)
	Coastal Plain	Piedmont & Blue Ridge	Valley & Ridge	Cumberland Plateau	
Alkalinity	30-500	10-200	30-500	30-200	
Total Diss.					
Solids	1000	250	500	500	
Chloride	50*	25	25	25	
Sulfate	50	25	100	150	
Total Organic					
Carbon	10	10	10	10	
Color units	15	15	15	15	
Iron	0.3	0.3	0.3	0.01-10	
Manganese	0.05	0.05	0.05	0.01-0.5	
Sodium	100*	25	25	100	
Fluoride	1.4**	1.4	1.4	1.4	
Hardness	120	120	300	180	

* It is recognized that naturally occurring concentrations will exceed this limit in the eastern part of the Coastal Plain, especially toward the shoreline and with increased depth.

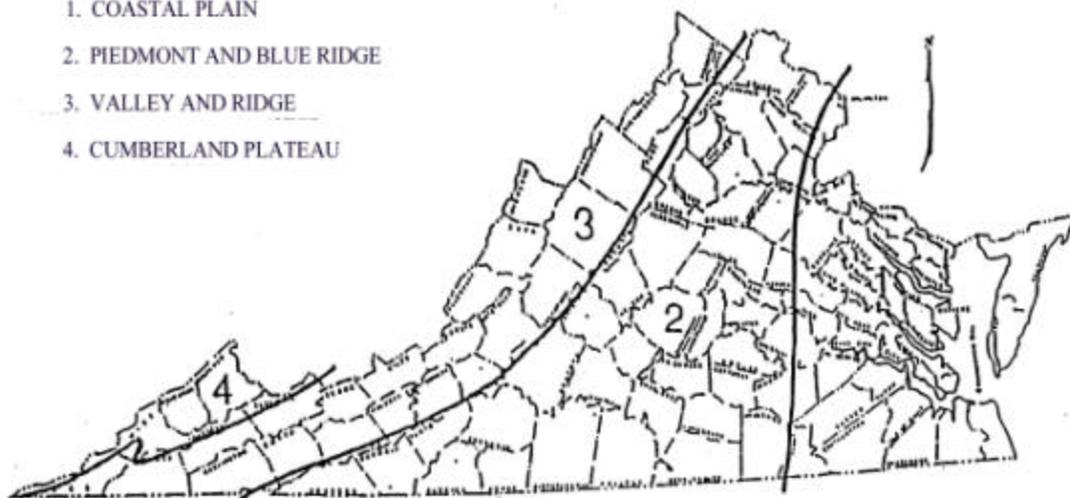
** Except within the cretaceous aquifer: concentration up to 5 mg/l and higher.

*** See Figure 1, for delineation of physiographic provinces.

Figure1

GROUNDWATER QUALITY STANDARDS
PHYSIOGRAPHIC PROVINCES

1. COASTAL PLAIN
2. PIEDMONT AND BLUE RIDGE
3. VALLEY AND RIDGE
4. CUMBERLAND PLATEAU



9 VAC 25-280-80. Modification, amendment, and cancellation of standards.

A. Under the authority of § 62.1-44.15(3)(b) of the State Water Control Law, the board reserves the right at any time to modify, amend, or cancel any of the rules, policies, or standards set forth here.

B. Within three years after the effective date of this chapter, the department shall perform an analysis on this chapter and provide the board with a report on the results. The analysis shall include (i) the purpose and need for the chapter; (ii) alternatives which would achieve the stated purpose of this chapter in a less burdensome and less intrusive manner; (iii) an assessment of the effectiveness of this chapter; (iv) the results of a review of current state and federal statutory and regulatory requirements, including identification and justification of requirements of this chapter which are more stringent than federal requirements; and (v) the results of a review as to whether this chapter is clearly written and easily understandable by affected entities.

Upon review of the department's analysis, the board shall confirm the need to (i) continue this chapter without amendment; (ii) repeal this chapter; or (iii) amend this chapter. If the board's decision is to repeal or amend this chapter, the board shall authorize the department to initiate the applicable regulatory process to carry out the decision of the board.

9 VAC 25-280-90. Designations of authority.

The director or his designee may perform any act of the board provided under this chapter, except as limited by § 62.1-44.14 of the Code of Virginia.